



Rocky Flats Environmental Technology Site

APR 24 1998

98-DOE-10651

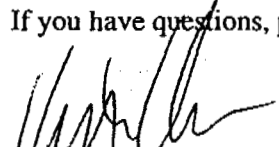
Mr. Joe Scheiffelin, Unit Leader
Hazardous Waste Monitoring and Enforcement
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80222-1530

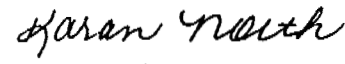
PERMIT MODIFICATION REQUEST #97-8-KSN-012-98

Dear Mr. Scheiffelin:

Pursuant to the requirements of 6 CCR 1007-3, Section 100.63, Appendix I for submittal of a RCRA Class 2 Modification Request for the Rocky Flats Environmental Technology Site, the United States Department of Energy, Rocky Flats Field Office (DOE,RFFO) is submitting the enclosed Permit Modification Request #97-8 for addition of a new treatment unit for the macroencapsulation of low level mixed waste in Building 865 and other suitable locations to the Site RCRA Permit. A description of the modification request is enclosed.

If you have questions, please contact Dave Grosek at 966-3305, or Randy Leitner at 966-3537.


Kern Klein, Deputy Manager
Technical Programs
DOE,RFFO


Karan North, Manager
Environmental Management & Compliance
Kaiser Hill Company L.L.C.

KSN:sau

Enclosure:
As Stated

cc: C. Gilbreath - CDPHE
D. Grosek - DOE,RFFO



ADMIN RECORD
IA-A-000328

RCRA Permit Modification Request #97-8

Certifications

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment."


Owner and Operator Signature

4/22/98
Date

Keith Klein, Deputy Manager
Rocky Flats Field Office
U.S. Department of Energy


Co-Operator Signature

3/31/98
Date

Robert G. Card, President
Kaiser-Hill Company, L.L.C.


Co-Operator

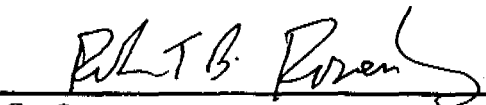
2/27/98
Date

A. C. Crawford, President
Rocky Mountain Remediation Services, L.L.C.


Co-Operator

3/4/98
Date

Roger Bacon, President
Safe Sites of Colorado, L.L.C.


Co-Operator

2 MAR 98
Date

Robert B. Rosenkranz, Acting General Manager
DynCorp of Colorado, L.L.C.

ORIGINAL

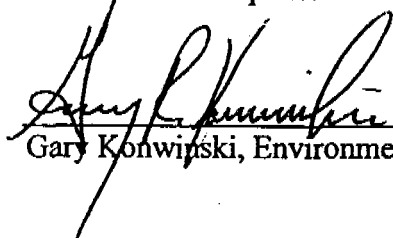
**RCRA DUE DILIGENCE SIGNATURE FOR
DOCUMENT PREPARATION (continued)**

DOCUMENT TITLE:

RCRA Permit Modification Request #97-8: Thermoset
Macroencapsulation of Low Level Mixed Debris Waste
in RCRA Unit 865.3

SECTION 3: (Document Preparer Lead)

This RCRA filing and all associated supporting documents have been prepared under my direction and control. After making the appropriate inquiry of those involved with providing information for this filing, I represent that the information contained therein is accurate and complete.



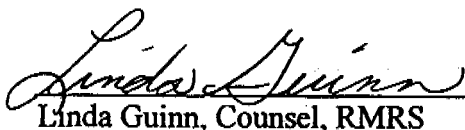
Gary Konwinski, Environmental Manager

01-28-98

Date

SECTION 4:

I have reviewed the information contained in this filing and find the document to be consistent with applicable law.

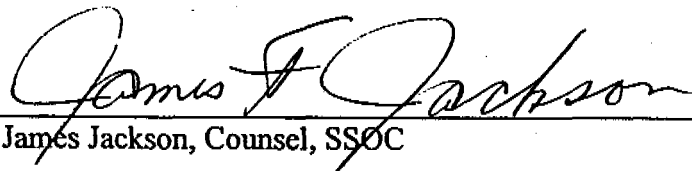


Linda Guinn, Counsel, RMRS

2-4-98

Date

I have reviewed the information contained in this filing and find the document to be consistent with applicable law.

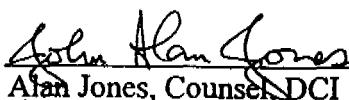


James Jackson, Counsel, SSOC

2/19/98

Date

I have reviewed the information contained in this filing and find the document to be consistent with applicable law.



Alan Jones, Counsel, DCI

2/26/98

Date

Major hazards associated with this treatment process include electrical malfunctions, chemical and radiological exposures, sharp edges in fabricated equipment, fire supported by combustible wastes, and heavy containers and equipment. Risks to workers from these hazards are mitigated through the use of certified electrical equipment, appropriate personal protective equipment (PPE), routine radiological surveillances as required by the Radiological Control Program, fire protection equipment and response personnel and proper lifting techniques. The treatment process is scheduled for implementation in Building 865 during the third quarter of fiscal 1998.

A 60-day public comment period will commence on the day that the public notice appears in a local newspaper for the public meeting to receive comments on the modification request. This notice is published within 5 working days following submittal of the permit modification request by the permit holders. The public meeting is scheduled for a weekday evening which is not sooner than 15 days following publication of the public notice for this meeting, nor later than 15 days before the end of the public comment period, per 6 CCR 1007-3, Sec. 100.63.

Permit Modification Request No. 97-8

Thermoset Macroencapsulation of Low Level Mixed Debris Waste in Building 865 and Other Suitable Locations

Summary

This document is submitted as a Class 2 permit modification request pursuant to 6 CCR 1007-3, Section 100.63, Appendix I. This request is necessary to treat these wastes to meet Land Disposal Restrictions (LDR) described in 6 CCR 1007-3, Part 268.

Part A: Notification

A proposed revision to the facility Part A Application is submitted with the attached supporting information pursuant to 6 CCR 1007-3, Sections 100.63(b)(1)(iv) and 100.40.

Requested Changes to Part B Permit

In accordance with 6 CCR 1007-3, Section 100.63(b)(1)(I), this portion of the Permit Modification Request describes the changes to be made to the permit. Changes or new information required to address Unit 865.3 have been identified by page number and section, when possible.

Parts I-IV, inclusive

No changes are necessary to these parts to address the subject unit.

Part V

1. Page V-i, Table of Contents, Section C.: Please amend the Table of Contents to read as follows:

"8. Unit 865.3..... V-88"

2. Page V-88, Section C., Unit Specific Conditions: Please insert the enclosed description of the macroencapsulation treatment process, along with its Unit Specific Conditions Sheet and drawings.

Parts VI-X, inclusive

No changes are necessary to these parts to address the subject unit.

(e.g., 55-gallon drum). Spacers may be used on the bottom and sides of the basket, if allowed by disposal site waste acceptance criteria, to keep the basket centered within the container. It has been demonstrated in treatability studies that a minimum distance of one and one half inches between the basket and the container wall is necessary for structural integrity of the polymer, especially while it is curing. When lead-containing materials are being encapsulated, additional support will be applied to the bottom of the basket.

The epoxy mixture is prepared in a container, using an approximate resin to curing agent ratio of 70:30 by weight. Sub-bituminous coal fly ash is then added to the mixture to a loading of 40% fly ash by weight. Mixing is conducted using a low shear mixer for ten minutes.

After the waste configuration and epoxy/fly ash mixture have been prepared, the mixture is poured into the waste container. It is important to assure that all voids in the waste have been filled with the mixture, and that the mixture covers the waste and basket to a depth of at least one and one half inches. Polymer curing will then proceed over the next two days. During the curing step, the polymer is expected to reach a peak exotherm of approximately 170°C within eight hours, and then slowly cool to room temperature. The waste container may be moved after only 24 hours of curing without disturbing the immobilized waste configuration.

General Safety Features

The Permittee will maintain a method to analyze, establish, and implement radiation and standard industry hazard controls necessary to safely support the operations associated with this process. The method will be implemented in accordance with Site procedures. Operating personnel will be trained to deal with safety hazards associated with this treatment process.

Waste Inspection and Analysis

Evaluation of the waste subject to this treatment process will be conducted in accordance with the approved process procedure and applicable regulations. Prior to macro-encapsulation, representative sampling and radiation level testing will be performed in accordance with the disposal site's requirements.

Pre-treatment waste inspection requires the availability of Real Time Radiography tapes and waste assay results verifying that each drum of waste awaiting treatment is less than 100 nanocuries per gram (nCi/g). Pre-treatment waste inspection will consist of visual verification that liquids or other materials incompatible with the epoxy curing process are not present. If liquids are found, they will be removed, if possible, and transferred to a waste storage unit. The remaining waste will be macroencapsulated. If it is not possible to remove the liquids, the waste will be returned to storage. Some waste which has free liquids characterized with D and F codes may require pre-treatment prior to macro-

TREATMENT PROCESS SPECIFIC CONDITIONS SHEET

2b. Unit 865.3 - Building 865 (Macroencapsulation of Low Level Mixed Debris Waste)

Location: Building 865 and various locations on site (case-by-case determination)

Process Equipment: Radiological Containment Cell (temporary structure), 55-gallon drum, mesh basket, resin mixing equipment

Treatment Process: Solidification and Stabilization

Design Capacity
Treatment Process: 8 - 55-gallon drums per shift

Operating Capacity:
Treatment Process: 4 - 55-gallon drums per shift

Equipment Dimensions:
(inches)

55-gallon drum:	23 in. OD x 32 in. H
Type IV Rigid Liner:	22 in. OD x 31 in. H
Macroencapsulation basket:	18 in. OD x 25 in. H
Epoxy mixing containers:	5 gallons volume

Waste Codes: D004, D005, D006, D007, D008, D009, D010, D011, F001, F002, F005, F006, F007, F009, P015

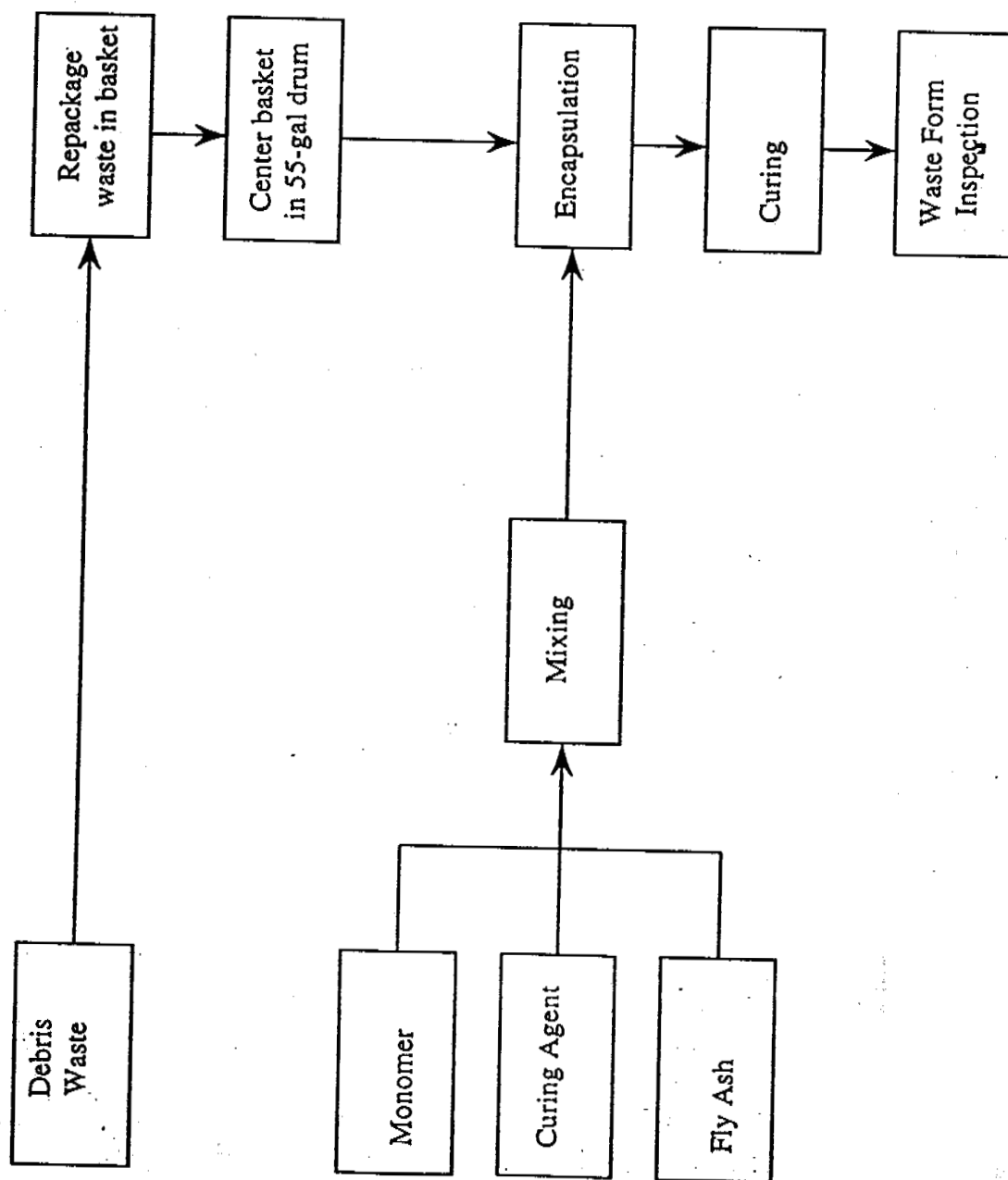
Waste Description: Solid Low Level Mixed Debris Waste

Secondary Containment
Type: N/A
Minimum Berm Ht.: N/A
Drawing Number: N/A

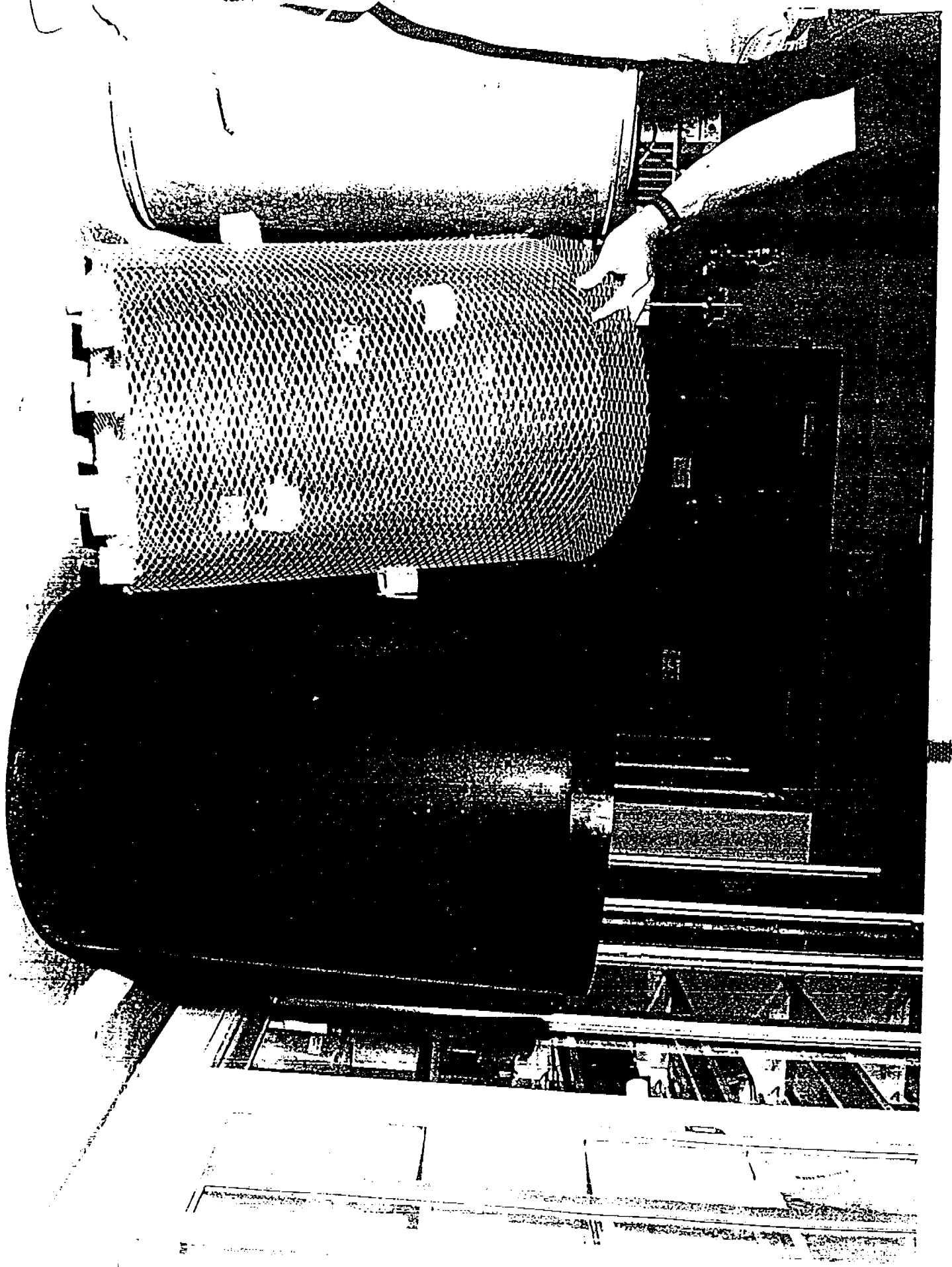
Inspection Method: Visual

Process Control
Variables:

Container Size:	Use only 10 or 55 gallon drums
Maximum thickness of plastic surrounding the waste in basket:	8 inches of plastic
Basket size:	Diameter = 19 in. \pm 1 in. Height = 26 in. \pm 1 in.



Epoxy Macroencapsulation Process Schematic



Supporting Information for RCRA Unit 865.3

The information provided in this part of the Permit Modification Request is submitted pursuant to 6 CCR 1007-3, Sections 100.63(b)(1)(iv) and 100.41. This part contains additional information is not incorporated into the permit application.

Regulatory Overview

The Polymer Macroencapsulation of Low-Level Mixed Waste process will be managed in accordance with RCRA regulations governing hazardous waste management facilities. This section describes the regulatory requirements of 6 CCR 1007-3, Part 264, Subpart X, and Part 268, Section 268.45, as they apply to these processes.

Operation of this treatment process will be conducted in accordance with 6 CCR 1007-3, Part 264, Subpart X (Miscellaneous Units), which stipulates that the units must be located, designed, constructed, operated, maintained and closed in a manner that will ensure protection of human health and the environment. General provisions for achieving such protection are:

- Prevention of releases due to migration of waste constituents in ground water or subsurface environment,
- Prevention of releases due to migrations of waste constituents in surface water, wetlands or on the soil surface, or
- Prevention of releases due to migration of waste constituents in the air.

Since this treatment process is located within a building, and existing Permit standard conditions for treatment units meet the requirements for prevention of releases to subsurface and to surface environments, no additional provisions are necessary to meet the conditions of the first two groups shown above. In addition, migration of releases in the air is highly unlikely, since there are no significant emissions from this treatment process.

The terms and conditions under which this unit is managed must also comply with the requirements of Part 264, Subparts I through O and AA through CC that are appropriate for the unit. For the Polymer Macroencapsulation of Low-Level Mixed Waste treatment unit, Subpart I (Use and Management of Containers) is applicable.

For Subpart I, the gloveboxes, process equipment and containers of waste, all of which serve as "containers" under this subpart, are subject to these provisions:

standards are given in Section 268.40, and/or by the evidence of reactivity due to contamination by cyanide.

6. Hazardous debris which has been treated using one of the methods listed in Table 1 and which does not exhibit a characteristic of hazardous waste per Part 261, Subpart C is no longer a hazardous waste, and need not be managed as such. However, debris contaminated with a listed waste that is treated using an immobilization technology specified in Table 1 is still a hazardous waste, and must continue to be managed as such.